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A NEW SPECIES AND VARIETY OF *ANOPHELES* FROM NIGERIA, WITH NOTES ON *ANOPHELES FLAVICOSTA* EDWARDS AND *AËDES* (*Aë.*) *WENDYAE* SERVICE

By M. W. Service*

(*Malaria Service, Federal Ministry of Health, Lagos, Nigeria*)

Anopheles brucei sp. n.

Adults

The following description is based on the holotype female, allotype male, and 1 male and 3 female paratypes.

Female : resembles *Anopheles demeilloni* Evans and *A. rivulorum* Leeson in many characters but differs as follows : costa of wing with two well-defined pale interruptions on basal one-fourth (fig. 1) (in a few specimens one of these two pale spots is absent (fig. 2*a*)), veins 3 and 5 more extensively pale scaled than in *rivulorum* and a pale fringe spot present opposite vein 6 (some specimens show more variation in the degree of pale scaling of the wings than is recorded for *demeilloni* or *rivulorum* (fig. 2*b*)) ; in the palps the two distal pale bands are broader than the narrow intervening dark band (fig. 3) ; mesonotum apparently lacks scales on distal half ; tarsal segments without any indications of pale bands ; pharyngeal armature similar to that of *demeilloni*, except that the filaments of the cones are always single, and no median tooth is present in the post-pharyngeal ridges.

Male : similar to female, but differs in having the dark fringe spot between veins 2·1 and 2·2 absent (fig. 4) ; allotype also differs from holotype in having only one pale spot on basal fourth of costa. Terminalia (fig. 5) similar to those of *demeilloni* in that club of harpago is distinctly bent inwards but differing as follows : none of the parabasal spines mounted on tubercles, outer accessory bristle as long as club, inner accessory bristle absent, the longest of the six pairs of phallosome leaflets is only 39 μ, and five pairs are serrated.

Pupae

Pupal pelt of male allotype similar in general chaetotaxy to that of *funestus* series (i.e. *funestus* var. *confusus*, *rivulorum* and *leesoni*), but the following differences occur : paddle fringe stops at insertion of paddle hair, which is not hooked ; accessory paddle hair 3–6 branched ; bristle *C* on segments V–VII longer than following segments ; spine *A* less than half length of segment on segments IV and V ; hair 4 on segments IV–VII is 3–4 branched and situated directly anterior to bristle *C*.

Larvae

The following description is from the larval pelt of the holotype and 2 paratype whole larvae.

Larvae very similar to *rivulorum*, but differ as follows : outer anterior clypeal hairs only one-third length of inner hairs ; abdominal tergal plates shallower and wider than in *rivulorum*, their width exceeding the distance between the bases of the palmate hairs, width : depth ratio 4 : 1 (*cf.* 3 : 1 for *rivulorum*) ; general shape of main plates (fig. 6) quite distinct from that of *rivulorum* and, although most of the larvae possess three accessory tergal plates on abdominal segments V, VI and VII, others have only one free accessory plate on each segment.

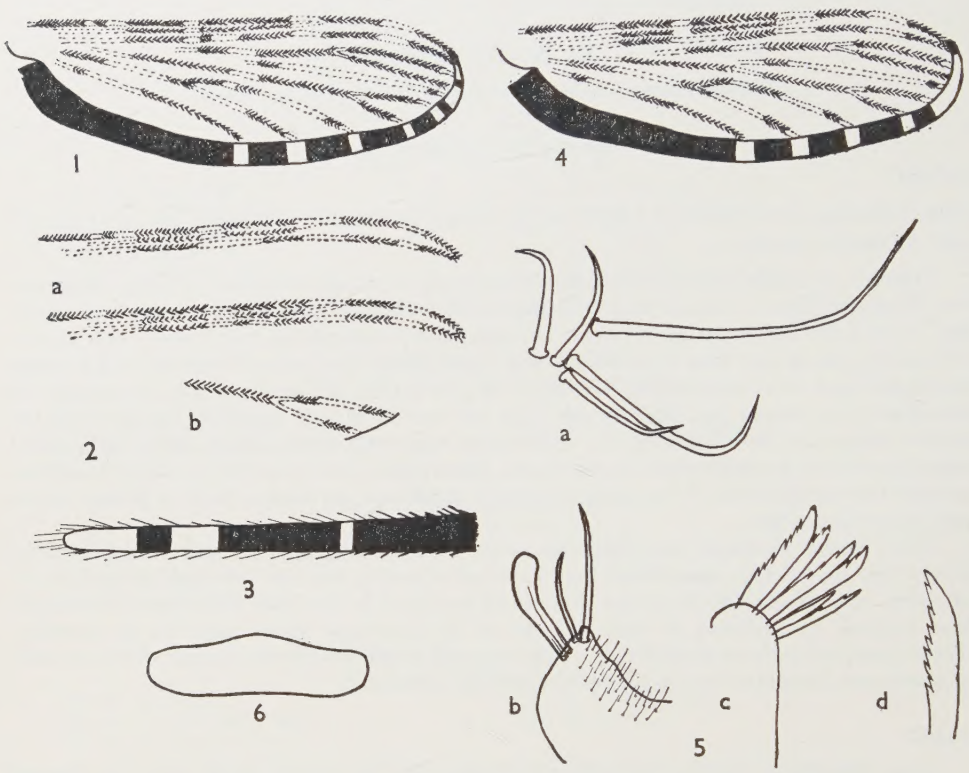
Holotype ♀, N. Nigeria : Lokoja, viii.58, with associated larval pelt, pupal pelt lost ; *allotype* ♂, same data and with associated larval and pupal pelts. *Paratypes*, 1 ♂ and 3 ♀ adults and 2 whole larvae, same data ; all types in British Museum (Nat. Hist.).

* Now with the Malaria Unit, Ministry of Health, Kaduna, N. Nigeria.

The larvae were found breeding in shady forest streams and in partially dried up river beds near Lokoja.

The species is named *brucei* after Dr. L. J. Bruce-Chwatt, O.B.E.

The early stages of *A. brucei* closely resemble those of the *funestus* series. Larvae possessing three accessory abdominal tergal plates run to *rivulorum* in the key given



FIGS. 1–6.—*Anopheles brucei* sp. n.: (1) wing of female holotype; (2) variation in wing pattern, (*a*) costa, subcosta and vein 1, (*b*) vein 4; (3) female palp of adult; (4) wing of male allotype; (5) male terminalia, (*a*) parabasal spines of coxite, (*b*) harpago, (*c*) phallosome leaflets, (*d*) longest phallosome leaflets; (6) main abdominal tergal plate on segment V of larva.

by De Meillon (1947); they can, however, be separated by the insertion of the following couplet.

Main tergal plate on segment V wider and shallower, about 4 times as wide as deep . . . . . **brucei**

21a

This plate narrower and deeper, about 3 times as wide as deep . **rivulorum**

The pupae, though not agreeing in chaetotaxy with any particular member of the *funestus* series, have several characters that are shared among the different species of the group. The adults resemble those of *demeilloni* more closely than those of *rivulorum*. The eggs of *demeilloni* resemble those of *funestus* and the discovery of the present species further confirms the relatively close relationship between *demeilloni* and the *funestus* group.

It is of interest to note that larvae identified as *rivulorum* were collected from the same streams as *brucei*, and that adults bred from them were found to be typical *rivulorum*.

Anopheles hancocki var. **gilroyi** var. n.

Adults

The following description is based on the female holotype and the male allotype.

Female : agrees in general details with *Anopheles hancocki* Edwards, and with certain characters found in its three named varieties (Adam *et al.*, 1956), but differs as follows : wing (fig. 7) with two pale spots on basal one-fourth of costa, vein 4 pale scaled at fork, and scaling of other veins appears to have several of the characters found in the varieties of *hancocki* but in a different combination ; palps (fig. 8) with segment 2 dark scaled with apex narrowly white scaled, segment 3 dark with apex white scaled, and segments 4 and 5 all white ; hind tarsus (fig. 9) with segments 3–5 all pale scaled.

Male : resembles female in general appearance, but scaling on vein 1 differs slightly (fig. 10), terminalia (fig. 11) similar to var. *brohieri* except that one of the harpagones has two outer accessory bristles and the dentations of the phallosome leaflets extend over the basal fourth.

Pupae

Pupal pelt of holotype agrees in all details with that of *hancocki*.

Larvae

The following description is based on the pelt of the holotype and one whole larva.

Larvae similar in general appearance to those of *hancocki*, and in some details to var. *masseguini* (*vide* Hamon, 1954) and to atypical *hancocki* from Sierre Leone (Evans, 1938), but is distinguished from both *hancocki* and its varieties as follows : head pigmentation, as seen in whole larva (fig. 12), quite distinct from that of *hancocki* ; inner anterior clypeal hairs tapering and attenuated to a fine point, and the outer clypeals abruptly pointed ; posterior clypeals only half length of outer clypeals and not reaching bases of either the inner or outer hairs ; antennae with shorter spicules than in *hancocki* ; palmate hairs on abdominal segments I and II undifferentiated, though one or two leaflets may have indications of shoulders and serrations ; main abdominal tergal plates pale and large, being half the depth of the segment ; on segment V their width equals or very nearly equals distance between bases of palmate hairs ; one free accessory plate present on segments II–VII ; saddle hair split, nearer the base than in *hancocki*, into 6–7 branches ; pecten (fig. 13) with the short teeth longer than in *hancocki*, the longest being more than half length of long ventral tooth.

Holotype ♀, E. Nigeria : Itchi, near Enugu, v.58, with associated larval and pupal pelts ; *allotype* ♂, data as for holotype, but with no pelts. *Paratype*, one whole larva, same data ; all types in British Museum (Nat. Hist.).

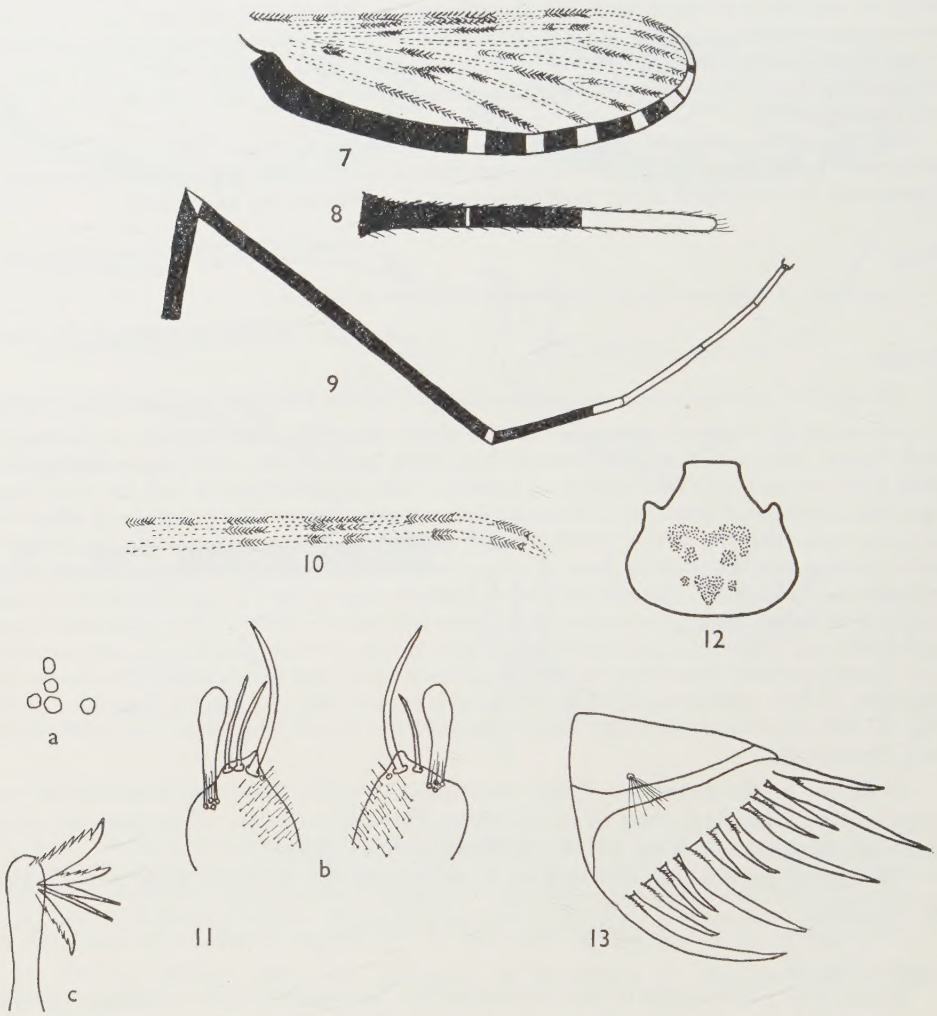
The larvae were found breeding in a swamp near the village of Itchi near Enugu, E. Nigeria.

The variety is named *gilroyi* after Dr. A. B. Gilroy, sometime malariologist in Lagos, Nigeria.

Adam *et al.* (1956) came to the conclusion that *hancocki* has three distinct varieties, var. *brohieri*, var. *seydeli* and var. *masseguini*, all of which are very similar in the adult state. There is apparently no satisfactory way of distinguishing the three varieties with certainty on wing scaling alone, as this is too variable, but it seems that they can be separated on the coloration of the hind tarsus. As the differences separating this new form from *hancocki* and its varieties are no greater than those separating any of the known varieties from each other, it seems best to regard it as a variety of *hancocki* rather than as a distinct species or subspecies.

Mention is made by De Meillon (1947) of a specimen of *hancocki* from S. Nigeria which has, like *gilroyi*, the apical third of the female palps pale scaled. Through the kindness of Dr. De Meillon, the author has been able to examine the specimen concerned, and to make the following observations. In general appearance and in the coloration of the palps it is similar to *gilroyi*. The wing scaling agrees partly with *gilroyi* and partly with *hancocki*, but differs slightly from both forms as follows : the costa in the first dark area, as in *gilroyi*, has two pale spots, vein 1 in the second

dark area has no pale spot (cf. *gilroyi* (figs. 7 and 10)), in the third dark area, in common with both *hancocki* and *gilroyi*, there is a pale spot on vein 1 ; however, vein 1 differs from both in that the pale spot separating dark areas two and three on vein 1 is obscure and poorly developed. Vein 4 is like that of *gilroyi*, and the



FIGS. 7–13.—*Anopheles hancocki* var. *gilroyi* var. n. : (7) wing of female holotype ; (8) palp of adult female ; (9) hind tarsus of adult ; (10) costa, subcosta and vein 1 of wing of male allotype ; (11) male terminalia, (*a*) plan of insertion of parabasal spines into coxite, (*b*) harpagones, (*c*) phallosome and leaflets ; (12) clypeal pattern of larva ; (13) larval pecten.

dark fringe spot between veins 3 and 4·1, which is reduced in *gilroyi*, is absent ; also missing is the dark fringe spot between veins 4·1 and 4·2. The similarity of the female palps of this specimen to those of *gilroyi*, and the fact that greater similarity is shown in its wing scaling to *gilroyi* than to the other varieties of *hancocki*, make it quite probable that the specimen is in reality var. *gilroyi*.

At Itchi in the same area in which var. *gilroyi* was found, there were larvae of the type form of *hancocki*. After pupation and emergence the adults were identified as typical *hancocki*.

Taxonomic Notes on *Anopheles flavicosta* Edwards, 1911

It is only fairly recently that the immature stages of *A. flavicosta* have been described—the larva in 1942 and the pupa in 1949. Even with the adult, which was first described in 1911, there is meagre information concerning variability, and the morphology of the terminalia seems to be imperfectly known. Below are some observations on the various stages of this species that have either been overlooked or described incorrectly.

Adults

The wings are seen to exhibit considerably more variation in the degree of light and dark scaling than is usually illustrated. The basal one-fourth of the costa may either have one very minute pale interruption, or have two pale basal spots. Area two on vein 1 may have a pre-accessory spot, and vein 2 can either show extensive pale scaling or be predominantly dark scaled, while vein 6 may either have two or three small patches of dark scales, or have the entire distal half pale scaled.

There are also differences between the appearance of the terminalia as described by Evans (1938), and that observed in the present material. The following is the description of the terminalia given by Evans (1938). "Coxites with rather dense scales. Parabasal spines normal for the group. Harpago with club rather short and broad; terminal hair *nearly twice as long as club*; inner and outer accessory hairs both present, less than half as long as terminal hair. Phallosome (in the single specimen examined) with 7 pairs of leaflets, the 3 or 4 longest pairs almost half as long as phallosome, rather narrow (even when seen at their full width), and so far as can be seen without serrations." In the present material, the terminal hair is only one and a half times as long as the club, the outer accessory bristle is one-fourth the length of the terminal hair, and the inner accessory hair is absent in all specimens except two, where it is very slender and as long as the outer hair. The phallosome is quite broad, bearing 7–9 leaflets on each side, all of which are narrow. The number having serrations varies in individual specimens, but not according to locality. In some specimens only 2–3 leaflets are simple, whereas in others 4–5 are simple.

Pupae

Mattingly (1949) described the pupal stage from a solitary pelt from Makurdi, Southern Nigeria, and suggested that it could be separated from *gambiae* and var. *melas* by the insertion of the following couplet into De Meillon's key (1947).

Meatus of trumpet less than one-fourth the length of whole; seta *C* on segments V–VII bifid or trifid . . . . . **flavicosta**

46A.

Meatus of trumpet longer, about one-third length of the whole or more; seta *C* on V–VII normally simple (one seta occasionally split)
gambiae (in part), **gambiae** var. **melas**

Examination of a series of pelts from the French Southern Cameroons, Northern Nigeria and Eastern Nigeria, shows that seta *C* is considerably more variable than formerly supposed. In the majority of specimens this seta is single on segments VI and VII and in a few pelts it is also single on segment V. Other specimens, however, show the bifid and trifid branching mentioned by Mattingly. In addition the accessory paddle hair which is stated to be 2–4 branched was, in one specimen, single.

After comparing the pupal pelts of *flavicosta* with those of *gambiae* and var. *melas*, it is suggested that the following alterations be made to the couplet.

Meatus of trumpet less than one-fourth length of whole ; seta *A* on segment VI less than half length of segment VII . . . . . **flavicosta**

46A.

Meatus of trumpet long, about one-third or more length of whole ; seta *A* on segment VI half or more length of segment VII **gambiae** (in part), **gambiae** var. **melas**

Larvae

The type description is given by Davey (1942), and De Meillon (1947) uses it as the basis of his account of the species. Although in both accounts the palmate hairs on abdominal segments I and II are stated to be rudimentary, no mention is made as to whether they are differentiated or whether they resemble the hair on the thorax in being shoulderless. Examination of larvae from the above localities shows that in all cases the palmate hairs on segments I and II are clearly differentiated into serrated shoulders and short terminal filaments. With the exception of two specimens, the tergal plates are seen to have a free median accessory plate on segments II and III, whereas Davey's Sierre Leone material usually had the accessory plates on these segments fused to the main plate.

Aëdes (*Aëdimorphus*) *wendyae* Service, 1959

As no type of this species was designated in the original description (Service, 1959), an adult ♂ in the British Museum (Nat. Hist.), with the following data : S. Nigeria : Ikorodu, iii.59, has been marked as a lectotype.

Acknowledgments

The author wishes to thank Sir Samuel L. A. Manuwa, C.M.G., O.B.E., Chief Medical Adviser to the Federal Government of Nigeria, for his permission to publish this paper.

References

Adam, J. P., Hamon, J., Rickenbach, A. and Lips M., 1956, I. Description du mâle et du pharynx de la femelle d'*Anopheles brohieri* Edwards, 1929, et *A. hancocki* var. *masseguini* Hamon, 1954. II. Étude des affinités existant entre *Anopheles hancocki*, *A. hancocki* var. *masseguini*, *A. brohieri*, *A. theileri*, *A. seydeli*. *Bull. Soc. Path. exot.* **49** : 747–58.

Davey, T. H., 1942, The larva of *Anopheles flavicosta* Edwards. *Ann. trop. Med. Parasit.* **36** : 179–81.

De Meillon, B., 1947, *The Anophelini of the Ethiopian Geographical Region.* Johannesburg. (*Publ. S. Afr. Inst. med. Res.* **10**.)

Evans, A. M., 1938, *Mosquitoes of the Ethiopian Region. Part II, Anophelini, adults and early stages.* London. British Museum (Nat. Hist.).

Hamon, J., 1954, Contributions à l'étude des Culicides de la region de Bobo Dioulasso (Haute Volta). *Ann. Parasit. hum. comp.* **29** : 573–87.

Mattingly, P. F., 1949, Anopheline pupae (Diptera : Culicidae) from West Africa. *Ann. trop. Med. Parasit.* **43** : 23–25.

Service, M. W., 1959, A new species of the genus *Aëdes* from Southern Nigeria. *Proc. R. ent. Soc. Lond.* (B) **28** : 73–76.

A NEW SUBGENUS OF *ZYRAS* STEPHENS (COLEOPTERA: STAPHYLINIDAE) FROM AFRICA

By H. R. Last

Zyras subgenus **Visendor** subgen. n.

This new subgenus has been made necessary to receive the four species *marukana* Cameron, *peculiaris* Cameron, *forus* Last and *planatus* Last, all of which were described in the subgenus *Parophthalmonia* from single female examples. With further material available it has been found that the males do not possess the setiferous craters between the base of the antennae, as in that subgenus. They cannot be placed in *Apostenonia* as the lateral margins of the pronotum are not reflexed. The new subgenus is characterised as follows:

Antennae variously formed but with segments more or less laterally compressed; eyes large, very convex; temples very short (except in *forus*); pronotum transverse with all angles rounded, almost elliptical, moderately convex, without lateral depressions or reflexed margins; elytra transverse; abdomen more or less narrowing to apex. Males without setiferous craters between base of antennae.

Subgeneric type species *Zyras* (*Visendor*) *marukana* Cameron.

Key to Species of Subgenus *Visendor*

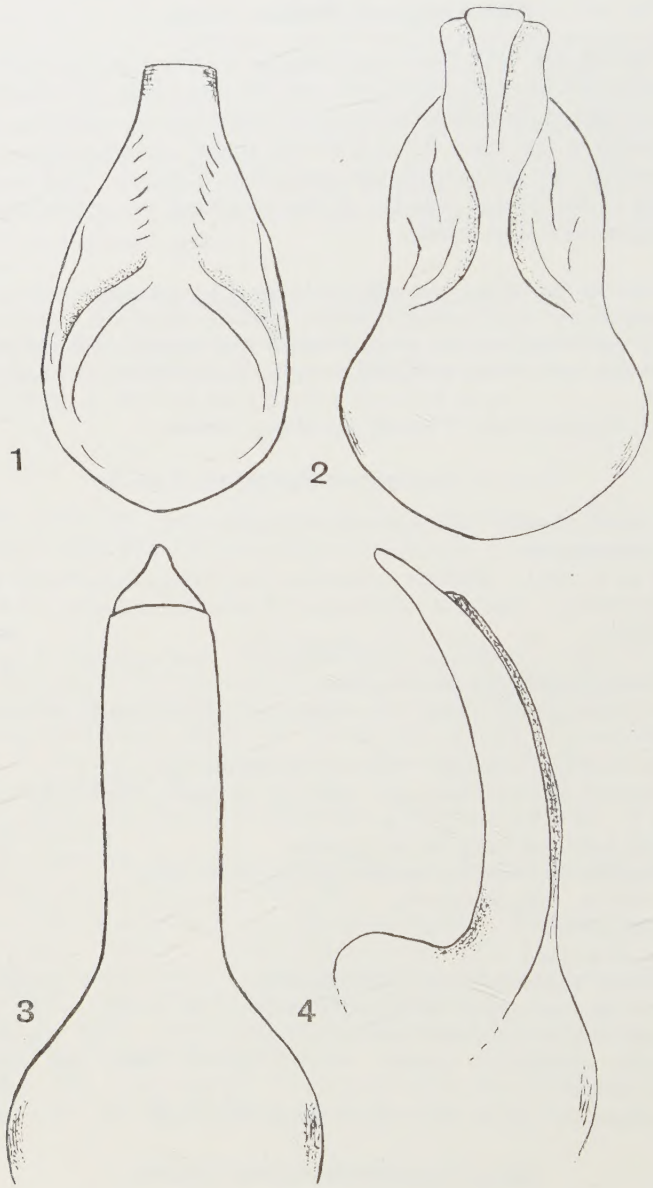
1	Pronotum black, broadly bordered reddish-yellow	2
–	Pronotum concolorous	4
2	Size larger (8–9 mm.); shining; pronotum less elliptical, posterior corners more pronounced; length of last segment of antennae equal to penultimate four together	**ituriensis** sp. n.
–	Smaller (5–7 mm.); pronotum more elliptical; last segment of antennae shorter than penultimate four together	3
3	Size larger (7 mm.); dull; head, pronotum and elytra strongly reticulate	**raritus** sp. n.
–	Size smaller (5 mm.); shining; without microsculpture	**bomansi** sp. n.
4	Eyes not convex, in continuous line with side of head, which is broadest at temples	**forus** Last
–	Eyes convex, head not broadest at temples	5
5	Eyes only moderately convex, temples longer (9–10 mm.)	**planatus** Last
–	Eyes very convex, temples shorter	6
6	Size larger (9–10 mm.)	7
–	Size smaller (6–8 mm.)	8
7	Shining, without microsculpture; colour darker	**peculiaris** Cameron
–	Head, pronotum and elytra with microsculpture in male; in the female clearly seen only on the head; colour lighter	**marukana** Cameron
8	Microsculpture completely absent, reddish-brown; head and abdomen darker	**spheginus** sp. n.
–	Head, pronotum and elytra with colour completely dark	**vanellus** sp. n.

Zyras (*Visendor*) *marukana* Cameron

1933, *Bull. Ann. Soc. ent. Belg.* **73**: 52.

Described from a female taken at Faradje, Maruka. It has also been taken in the following localities in the Congo Belge: Kinda, Sankuru (Komi), Munoi (Lupiala): and in Angola: Dundo.

In his description Cameron states that the pronotum and elytra are without microsculpture. This is true only in the female ; the male has distinct microsculpture. In the male the tergites are much depressed, with a blunt central basal tooth on the fourth tergite and a central apical tooth on the sixth ; the seventh tergite has a deep central depression and the usual lateral furrows. (Median lobe of aedeagus, fig. 1.)



FIGS. 1–4.—*Zyras* (subgen. *Visendor*) spp. Median lobe of aedeagus of : (1) *marukana* Cameron ; (2) *peculiaris* Cameron ; (3–4) *forus* Last (ventral and lateral views).

Zyras (*Visendor*) *peculiaris* Cameron

1952, *J. E. Afr. Ug. nat. Hist Soc.* **20** : 455.

Described from a female taken in KENYA COLONY : NW. Mau. It has also been taken in the following localities in the CONGO BELGE : Ruanda (Kibungu), Kivu (Lubero, Fizi) ; and in TANGANYIKA : Kiumba, E. Usambara.

There are no secondary sexual characters. (Median lobe of aedeagus, fig. 2.)

Zyras (*Visendor*) *forus* Last

1956, *Ann. Mus. Congo Belge* (Sér. 8°) **51** : 206.

Described from a female taken in the CONGO BELGE : Ruanda (Rutovu). It has also been taken in the following Congo localities : Kivu (Lubero), (Mwenga), (Kabare Nyakasiba), (Kiboli-Ituri).

There are no secondary sexual characters. (Median lobe of aedeagus, figs. 3 and 4).

Zyras (*Visendor*) *planatus* Last

1956, *Ann. Mus. Congo Belge* (Sér. 8°) **51** : 208.

Described from a female taken in the CONGO BELGE : Ruanda (Rutovu). It has also been taken in Kivu (Lubero). (Eighth tergite of male, fig. 5 ; median lobe of aedeagus, fig. 6.).

Zyras (Visendor) raritus sp. n.

Of the same size and similar in general appearance to *Z.* (*Eurydonia*) *bohemani* Bernh. and Scheerp., but with laterally compressed antennae, lateral furrows on the seventh tergite, and the abdomen acuminate at apex. In addition to these characters, the pronotum not so transverse, and more strongly punctured, with deeper reticulation ; elytra a little more strongly but not quite so densely punctured ; intermediate and posterior tibiae spinose (in *bohemani* they are pubescent).

Colour : pronotum coloured as in *Z.* (*Visendor*) *ituriensis* sp. n., *i.e.* black, broadly bordered laterally with reddish-yellow ; head black with a slight blue reflection in some lights ; antennae reddish-brown with base lighter ; elytra reddish-yellow with a large triangular black patch extending from just below shoulder to sutural angle, where it is joined by another extending along the suture ; abdomen dark reddish-yellow, legs lighter. *Head* transverse (4 : 3)[1], strongly and deeply but sparingly reticulate ; punctured on either side, vertex impunctate ; eyes large, a little convex, their longitudinal diameter twice length of temples, where there are short setae ; antennae robust, laterally moderately compressed from segment four ; first segment broadened and emarginate at apex, second one-third length of first ; third half length of first, fourth quadrate, fifth to tenth transverse ; last segment shorter than two penultimate together, strongly acuminate ; segments four to ten each strongly broadened at apex, finely setose. *Pronotum* transverse (5 : 4), little broader than head, moderately convex, strongly and deeply reticulate, a median impunctate band, broadly bordered with large irregular punctures which become more sparing towards lateral margins ; broadest at anterior third, posterior angles barely discernible, anterior angles obtuse, with short sparse setae. *Elytra* transverse, (6 : 4·5 at shoulders ; 7 : 4·5 at posterior margin), densely and strongly punctured, interstices strongly and deeply reticulate ; scutellum impunctate ; sutural and posterior margins bordered, latter not sinuate, with short pubescence. *Abdomen* broadened at apex of third tergite, then strongly narrowed to apex ; shining, impunctate, without visible microsculpture ; fourth tergite with a small central tooth, broadly depressed laterally ; fifth strongly raised into a central keel which bears 2 strong teeth, one projecting beyond the apical margin ; sixth strongly raised and forming a robust central tooth on apical margin (fig. 19) ; seventh with 2 longitudinal furrows ; eighth small, narrow, convex, apex emarginate and with 3 small keels ; corresponding sternite narrow, strongly acuminate (figs. 7 and 8). (Median

[1] This and subsequent ratios, unless otherwise stated, refer to greatest width by greatest length.

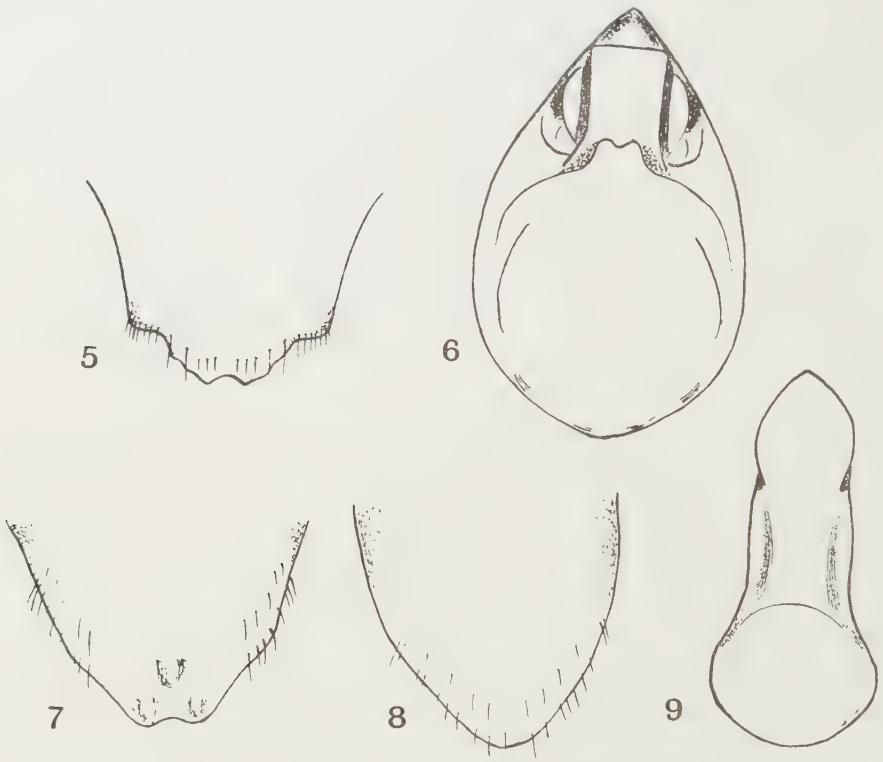
lobe of aedeagus, fig. 9.) (It is possible that the tergites may show variation in these developments, as is frequent in other sub-genera.) Tibiae with setae ; intermediate tibiae spinose.

Length : 6 mm.

Type ♂, Natal : Durban, 1902 (*F. Muir*) " Sharp Coll. 1905–313 ". Unique. In British Museum (Nat. Hist.).

Zyras (Visendor) bomansi sp. n.

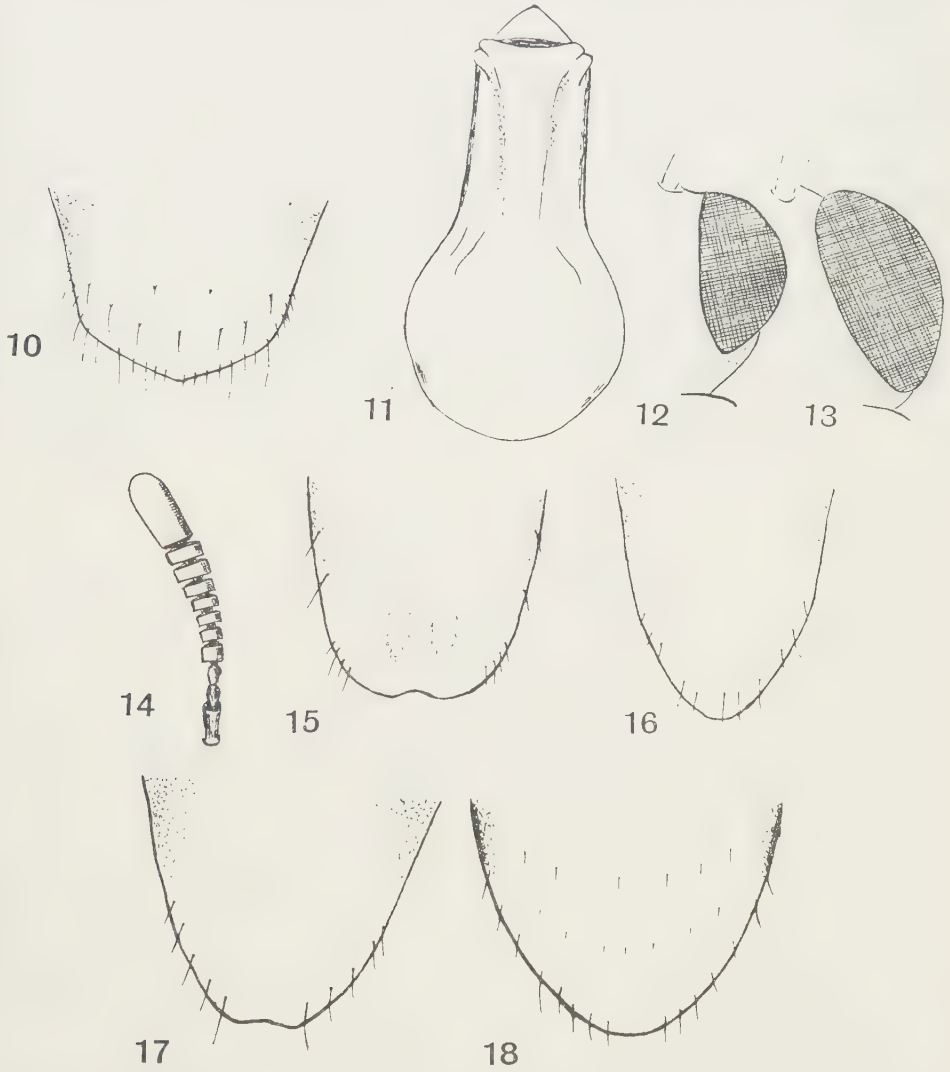
In coloration similar to *raritus* sp. n. but smaller ; the antennae differently constructed and without the strong reticulation of the head, pronotum and elytra, which are distinctive characters of that species. Antennal structure similar to *peculiaris* Cam., *marukana* Cam. and *forus* Last.



Figs. 5–9.—*Zyras* (subgen. *Visendor*) spp. : (5) *planatus* Last, eighth tergite of male ; (6) the same, median lobe of aedeagus ; (7, 8) *raritus* sp. n., eighth tergite and sternite of male ; (9) the same, median lobe of aedeagus.

Colour : head and pronotum black, the latter laterally bordered yellow ; elytra yellow with postero-external angles black extending laterally almost to shoulders, suture and scutellum darkened, tergites five to seven black, seventh reddish apically, eighth yellow. *Head* transverse (4 : 2·25) to base of antennae ; shining, without microsculpture but with a few large scattered punctures bearing rather long slender setae, denser near temples where the setae are stouter and pointing forward ; eyes large, not very convex, their longitudinal diameter three-quarters length of temples ; antennae moderately long, laterally compressed, reaching beyond posterior margin of pronotum ; all segments longer than broad, first broadened and emarginate at apex, second half length of first, third a little longer than second but shorter than first ; fourth to seventh equal in length ; eighth to tenth each a fraction shorter than the preceding, last segment half again as long as penultimate, acuminate at apex ; all segments setose, setae longer at apical edge of each, all broader at apex, first 2 yellow, others darker ; maxillary palpi yellow, penultimate segment setose. *Pronotum* transverse (5 : 3·5), broader than head, shining, without microsculpture, with large irregularly placed setiferous punctures leaving a median impunctate band, lateral

margins more sparingly punctured ; anterior margin more convex, angles more obtuse, posterior angles more rounded, lateral margins evenly rounded, broadest in the middle ; a few setae at anterior angles, all margins very narrowly bordered. *Elytra* slightly transverse (5 : 4) at shoulders, as broad as pronotum (6 : 4) at posterior margin ; shining, densely and strongly punctured, interstices narrower than diameter of punctures, similar to *raritus* sp. n., finely pubescent ; hardly



FIGS. 10–18.—*Zyras* (subgen. *Visendor*) spp. : (10) *bomansi* sp. n., eighth tergite of male ; (11) the same, median lobe of aedeagus ; (12) the same, eye ; (13) *spheginus*, eye ; (14) *ituriensis*, left antenna ; (15, 16) the same, eighth tergite and sternite of male ; (17, 18) the same, eighth tergite and sternite of female.

sinuate at postero-external angles ; posterior margin and suture narrowly bordered. *Abdomen* narrow at apex, very shining, without microsculpture ; each tergite with a few punctures on apical edge from which arise rather long setae ; paratergites more setose ; eighth tergite of male broadly acuminate, corresponding sternite narrowly rounded, both with rather long black setae (fig. 10) ; legs long, compressed, intermediate and posterior tarsi slender, all tibiae with short spines. (Median lobe of aedeagus, fig. 11.)

Type ♂, BELGIAN CONGO : Moba, Katanga, 27.xi.1953, at light (*H. Bomans*). Unique. In author's collection.

Zyras (Visendor) spheginus sp. n.

Similar to *Z.* (*Visendor*) *marukana* Cameron but much smaller; abdomen shining, without microsculpture, elytra, head and pronotum with only a faint and indistinct microsculpture; darker in colour and the aedeagus quite different.

Colour: chestnut-red, abdomen darker, head black. *Head:* transverse (4·5 : 2·5) to base of antennae, shining with faint indistinct microsculpture; sparingly punctured, a little more closely towards the eyes, which are large, convex, their longitudinal diameter four times as long as the temples; antennae laterally compressed, all segments broader at apex; first segment broadened and emarginate at apex, second half length of first, third a little longer than second; fourth to seventh as long as second; eighth to tenth a little shorter, last segment equal to, but evidently narrower than, penultimate, acuminate at apex; all segments with setae at apex; maxillary palpi long and setose. *Pronotum* transverse (5·75 : 4), broader than head, with very faint indistinct microsculpture, punctures large and diffuse, absent at sides; moderately convex, evenly rounded, broadest just before middle, sparingly pubescent; all margins narrowly bordered. *Elytra* transverse (5·75 : 4·25 at shoulders; 6·5 : 4·25 at posterior margin); shining, densely punctured, microsculpture extremely faint; finely pubescent; suture and posterior margin very finely bordered, the latter not sinuate. *Abdomen* pointed at apex, shining, impunctate except for apical edge of each tergite, which is very closely punctured and setose; paratergites more densely setose; seventh tergite with lateral furrows; eighth narrow, broadly acuminate; corresponding sternite narrowly rounded, both setose; tibiae rather robust and spinose.

Type ♂, French Guinea: Kindia, 1954 (*A. Villiers*). Unique. In Institut Français D'Afrique Noire, Dakar.

Zyras (Visendor) vanellus sp. n.

Similar to *Z.* (*Visendor*) *spheginus* sp. n. but slightly larger, less shining, eyes larger, more convex (very like those of *peculiaris* Cam. (figs. 12 and 13)), antennae longer, segments more elongate, each much less broadened at apex; head and pronotum with fine distinct reticulation, elytra and abdomen with transverse microsculpture.

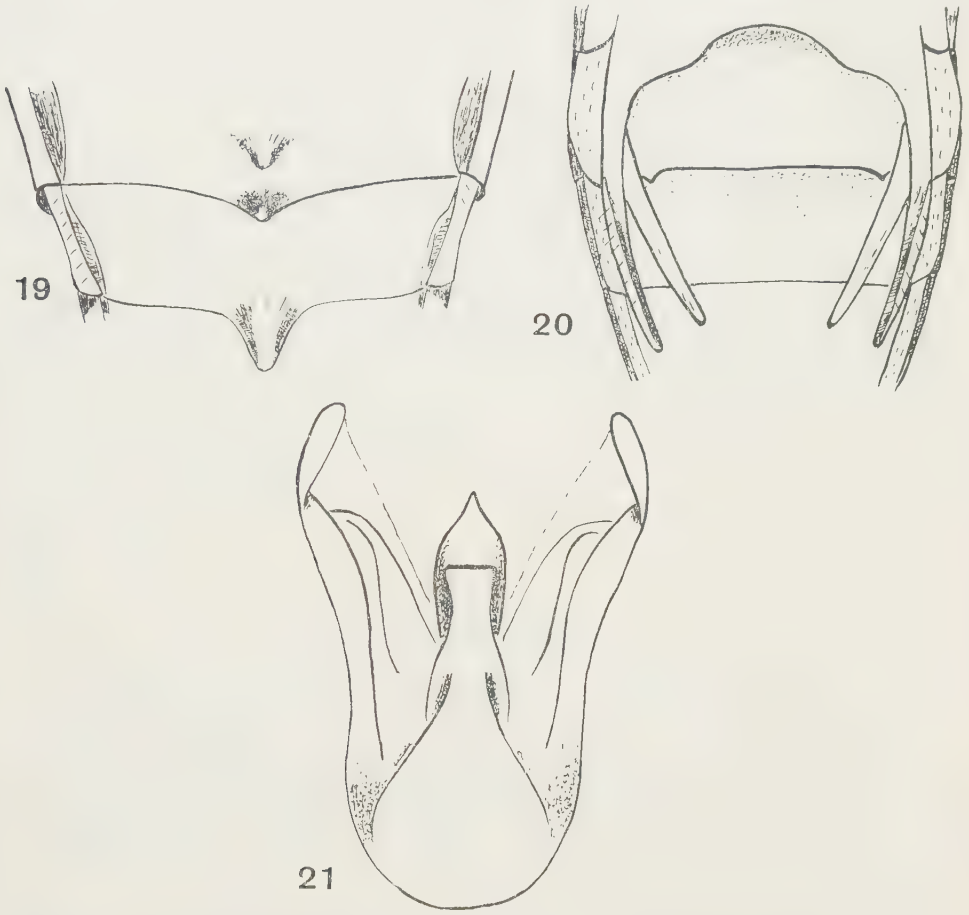
Colour: head black; pronotum and elytra and apical margins of tergites reddish. *Head* transverse (5 : 2·75) from base of antennae, with fine reticulation, a few large punctures near inner margins of eyes, which are large, very convex, and occupy almost whole side of head; antennae long, reaching beyond posterior margin of pronotum, reddish-yellow, laterally compressed; first segment broadened and emarginate at apex, second half length first, third longer than second but a little shorter than first, fourth a little shorter than third; fifth to eighth of equal length, a little shorter than fourth, ninth and tenth a little shorter, last segment almost twice length of penultimate, gradually acuminate and compressed at apex; all segments setose, more so than in *spheginus* sp. n. and a little broadened at apex; maxillary palpi long, penultimate segment setose. *Pronotum* transverse (6·5 : 4·25) with distinct reticulation irregularly punctured, more sparing at lateral margins which are evenly rounded; anterior angles obtuse, posterior angles rounded with posterior margin; a few setae at anterior angles, all margins narrowly bordered. *Elytra* transverse (6·5 : 5 at shoulders; 7·5 : 5 at posterior margin), densely punctured, interstices with distinct transverse microsculpture, short pubescence, no perceptible sinuation at postero-external angles; scutellum with transverse microsculpture; suture and posterior margins narrowly bordered. *Abdomen* narrowed at apex, with fine transverse microsculpture, glabrous and impunctate; paratergites with setae; seventh tergite with a central and broad lateral furrows; eighth narrowly rounded, blunt at apex, corresponding tergite broadly rounded, both with numerous setae; legs long, setose (especially tibiae).

Type ♀, French West Africa: Ivory Coast, Nizida, xii.1953 (*A. Villiers*). Unique. In Institut Français D'Afrique Noire, Dakar.

Zyras (Visendor) ituriensis sp. n.

Antennal segments not of the same structure nor so laterally compressed as in *marukana* Cam. and its allies; smaller than these species, of narrower build; antennae very different (fig. 14), as also eighth tergite and corresponding sternite (figs. 15–18).

Colour : head and pronotum black, the latter laterally broadly bordered reddish-yellow ; elytra reddish-black, darker laterally, shoulders lighter ; abdomen brownish-yellow, apex of segments and segments six and seven much darker. *Head* very transverse (4·75 : 2·25), well produced between the antennae where there are a number of setae ; eyes large, convex, their longitudinal diameter three times length of temples, where there are a few setae ; distinct but confused reticulation with a few large punctures towards inner margins of eyes ; antennae stout,



Figs. 19–21.—*Zyras* (subgen. *Visendor*) spp. : (19) *raritus*, fifth and sixth tergites of male ; (20) *ituriensis*, third and fourth tergites of male ; (21) the same, aedeagus.

gradually broadened towards apex, all segments, except the last, slightly compressed ; first segment apically broadened and emarginate, second and third equal, little longer than broad, a quarter length of first ; fourth to tenth gradually broadening, last segment laterally much compressed, as long as 4 penultimate together, parallel-sided, bluntly acuminate ; all segments finely setose and with black setae from apical rim of each. *Pronotum* transverse (6 : 5), broader than head, moderately convex, broadest at anterior third, narrowing to posterior margin which is rounded, with angles barely visible ; anterior angles more distinct, with a few vertical black setae extending along lateral margins ; shining, with reticulation visible but not strongly developed, with large irregular punctures on disc which become more sparing towards lateral margins, the punctures varying in size, some umbilicate ; a median impunctate band discernible, more distinctly in the male ; all margins finely bordered. *Elytra* transverse (6 : 5 at shoulders ; 7·5 : 5 at posterior margin), moderately and evenly punctured, the interstices equal to diameter of punctures ; without microsculpture, slightly pubescent ; scutellum densely punctured and reticulate ; suture and posterior margins bordered, the former more broadly, not sinuate, sutural angles rounded.

Abdomen shining, impunctate except for a row on apical edge of each tergite; paratergites moderately broad, each with setae at apex; third tergite in the male extended in 2 lateral "prongs" converging beyond apical margin of fifth tergite; these prongs laterally grooved towards the apex, where there are a number of short setae; posterior margin of tergite broadly emarginate between bases of prongs; fourth tergite furnished with 2 lateral prongs extending almost to the same distance but converging more strongly and not grooved; this tergite also with 2 small lateral teeth (fig. 20); seventh tergite in both sexes with 2 lateral grooves; eighth narrow, convex, with a small central emargination in both sexes; in the male 2 central keels also present towards the apex; corresponding sternite narrowly rounded, more so in the male, where it is bluntly pointed; aedeagus (fig. 21).

Type ♀, Congo Belge: Ituri Territory, Bunia, Mont Hoyo, 1100 m., iii.1952 forêt, recolté dans l'humus (*N. Leleup*).

Paratype ♂, same data (right elytron missing).

In Musée Royal du Congo Belge, Tervuren, Belgium.

Acknowledgments

I would like to express my thanks to Prof. P. Basilewsky (Musée Royal du Congo Belge) and Mons. A Villiers (Institut Français D'Afrique Noire, Dakar) for the loan of specimens, and to Mr. E. B. Britton for facilities for studying material in the British Museum (Natural History).

Book Notice.

Ticks: a Monograph of the Ixodoidea. Pt. V. By Don R. Arthur. 8vo. Cambridge (University Press), 1960. Pp. xvii, 251: 4 pls., text illust. £3 0*s.* 0*d.*

The discovery of the importance of ticks as carriers of disease, led the late Professor G. H. F. Nuttall to inaugurate a comprehensive survey of their classification, structure and biology. Parts I–IV were completed by 1926, but his sudden death in 1937 put an end to work on the project for many years. Part V deals with the genera *Dermacentor*, *Anocentor*, *Cosmiomma*, *Boophilus* and *Margaropus*.

The synonymy, literature, morphology, and geographical distribution of these genera are discussed and keys to the species and, in some cases, to immature stages are given. The disease relationships of the species of *Dermacentor* and *Boophilus* are briefly referred to.

There are a large number of line illustrations; a comprehensive bibliography and a detailed index complete the work.

SOME NOTES ON AFRICAN SPECIES OF *BOMBYLIUS*, *SYSTOECHUS* AND *DISCHISTUS* (DIPTERA : BOMBYLIIDAE)

By S. J. Paramonov

(*Commonwealth Scientific and Industrial Research Organisation, Canberra, A.C.T., Australia*)

[Communicated by H. Oldroyd]

Bombylius namaquensis Hesse

Female.—Similar to *B. lateralis* Fabricius; body also black and hairs predominantly black. Frons quite 4 times as broad as ocellar tubercle. First antennal joint about 3 times as long as second; third comparatively shorter than in *lateralis* and much less than one and a half times as long as first and second together. Fine scale-like hairs on frons, on first antennal segments above and on sides of face whitish. Bristly hairs on lower part of occiput straw-coloured, whitish; the fine hair-like scaling on disc of thorax predominantly greyish-white, only those in bands along inner side of white bands rufous or reddish-golden; the fine erect, somewhat sparse, hairs on thorax above and the bristles on sides, in front of wings, black; hairs on pleurae distinctly paler than in *lateralis*, straw-coloured, and those on sides of venter also much paler and straw-coloured, not rufous, even those on venter paler.

Legs with femora black, and tibiae and greater part of tarsi pale yellowish-brown; hind femora with 11–13 spines below.

Wings very spotted, darkish infuscations and infusions in posterior part; 3 submarginal (sometimes 4) cells.

Length of body, *c.* 9 mm.; wing, *c.* 11 mm.

Male.—Unknown.

Namaqualand, vi. Type in South African Museum.

To show the taxonomic position of this species a partial key is given below.

Key to *Bombylius lateralis* Fabricius Group

1 Second longitudinal vein curved at right angles before its end and running perpendicularly towards anterior margin, or the curve greater and making an acute angle, being curved basad to anterior margin. Predominantly black species with thorax adorned by whitish lateral stripes; wings with anterobasal half dark, remainder more or less transparent and spotted (*lateralis* group) 2

– Second longitudinal vein very regularly curved before its end and touching anterior margin at less than an acute angle (apicad); no lateral stripes on thorax; wings unspotted, etc. 4

2 Second longitudinal vein and upper branch of third with irregular, short veinlets; two additional cross-veins also present, dividing first submarginal cell into three cells; wings very spotted . . . . . **B. namaquensis** Hesse, ♀

– The veins mentioned without stumps or appendices, bend of second longitudinal vein rectangular, not acutangular (basad), as in preceding species; hyaline part of wing a little spotted 3

3 Wings with only two submarginal cells, and with four dark spots in hyaline posterior part . . . . . **B. lateralis** Fabricius ♂, ♀

– Wings with three submarginal cells (rarely with only two), usually without rounded spots, but with infuscations along some veins **B. bivittatus** Loew ♂, ♀

Bombylius mollis Bezzi, ♂, ♀

(*B. disjunctus* Bezzi = ♀ *B. mollis*.)

The author has seen specimens from the following localities:

Kenya: Teita Hills, 1 ♂, viii.1947 (*van Someren*); Ngong, 1 ♂, 1 ♀, v.1936 (*Miss Steele*); 1 ♀, vi.1926 (*Symes* and *Hopkins*); Nairobi, 1 ♀, 8.v.1927 (*Symes*

and *Hopkins*); Jombeni Hills, 1 ♀, v.1947 (*van Someren*); 1 ♀, vii.1926 (*Wmbwa* ?). Tanganyika: Amani, 1 ♂, xii.1921; Tshibinda, 1 ♀, 21–27.viii.1931 (*J. Ogilvie*). Belgian Congo: Dilolo, Katanga, 1 ♀, 24–27.vii.1931 (*J. Ogilvie*).

Bombylius plorans Bezzi

The author has seen specimens from the following localities:

S. Nigeria: Ahoada, 1 ♀, 14.vii.1927 (*D. R. Roseveare*). Uganda: Bwamba, 3 ♀, vii–viii.1946 (*van Someren*); Bwamba Country, 2 ♀, 1938 (*J. O. Harper*); Loti (under dead leaves in forest), 5 ♀, 22.xi.1933 (*Miss Steele*).

Key to *Bombylius ornatus* Group

1 Black pattern at base of wings extends to discal cross-vein 2
– Wings at base hyaline or pale yellow, if black pattern present, black colour extends at most only to middle of basal cells 4
2 Squamae in both sexes silvery-fringed. Third antennal segment twice as long as two basal together, very narrow, stick-like, bifurcated at end, style being placed laterally. Thorax with yellowish hairs in front and with a white metapleural tuft. Wings broad, with rather less than basal half uniformly black, and remainder wholly hyaline . . **B. argentatus** Fabricius ♂, ♀
– Squamae in both sexes black-fringed. Third antennal segment comparatively much shorter, with terminal style. Thorax black-haired in front and with no distinct white metapleural tuft. Wings narrow, with basal black pattern limited to fore-border, axillary and anal cells being in part hyaline 3
3 A distinct, though variable, curved prolongation running from basal black area in wings along sixth longitudinal vein and reaching hind margin **B. delicatus** Wiedemann ♂, ♀
– The prolongation (dark infusion or infuscation) between anal and fourth posterior cell absent . . . . . **B. delicatus** Wiedemann var. **mutilatus** Bezzi, ♂, ♀
4 Squamae black-fringed in both sexes, only in female of *B. nigrilobus* partly white-fringed. Base of wing broadly black without yellow area; alula black or blackish, with a dark fringe; metapleural tuft black or dark, rarely fulvous 5
– Squamae in both sexes with silvery or luteous fringe. Base of wings usually narrowly blackened with more or less extensive yellowish areas or wings nearly hyaline; alula usually yellowish or whitish, rarely infuscated; metapleural tuft white and very striking 13
5 Males 6
– Females 9
6 Two silvery spots on fore part of frons wanting, two lateral spots on face very small and hardly distinguishable. Wing veins black; apical cross-vein of discal cell small, but not point-like. No silvery spots or stripes on thorax **B. plorans** Bezzi, ♂
– Frons with usual spots above; face more extensively clothed with silvery hairs 7
7 Upper basal cell intensely dark to base of prefurca, lower basal cell to basal half; darkening in these cells never yellow, but brown, nearly black. West African species . . . . . **B. nigrilobus** Bezzi, ♂
– Wing pattern not extending so far and dark colour bordered by yellow. East African species 8
8 Proboscis 4½–5 mm. Veins dark brownish, with basal infuscation darker. Spots of silvery scales on abdomen less developed. Rhodesia **B. melanolomus** Hesse, ♂
– Proboscis 3⅔–4 mm. Veins with yellowish tinge and paler infuscation at base. Spots of silvery scales on abdomen more conspicuous and developed. S. W. Africa . . . . . **B. lugens** Bezzi, ♂

9 Spot of silvery scales at sides of hind margin of eyes very large, its length nearly equal to width of lower basal cell. Frons with 4 silvery spots ; 4 silvery spots also present at humeral calli and bases of wings ; cross-vein distinctly before middle of discal cell, apical cross-vein short, but not point-like. Squamae with black, partly white hairs. West Africa **B. nigrilobus** Bezzi, ♀

– Spot of silvery scales on side margin of eyes small or absent 10

10 Thorax without spots of silvery scales ; silvery hairs on face greatly reduced; hair on body very long ; wing veins black . . . . **B. plorans** Bezzi, ♀

— Thorax with silvery spots at humeral calli and/or before wing base, or other type of scaling 11

11 Fine scaling on thorax brownish-golden ; mesonotum with silvery spots on humerus, another just before wings ; an admedian patch on each side in front, and a small admedian patch on each side in line with those in front of wings ; a large spot on each side of scutellum. Wings with discal cross-vein just before middle of discal cell. East Africa . **B. tuckeri** Hesse, ♀

— Mesonotum on disc without brownish-golden scales. Wings with discal cross-vein much before middle of discal cell (*B. melanolomus* no data) . . . 12

12 Proboscis 4½–5 mm. Silvery spots on body less developed. Wings with veins dark brownish, with basal infuscation darker and more blackish-brown. Rhodesia . . . . . **B. melanolomus** Hesse, ♀

— Proboscis 3⅔–4 mm. Silvery spots on body more developed. Wings much paler and with pale yellowish veins and paler basal infuscations. S. West Africa . . . . . **B. lugens** Bezzi, ♀

Bombylius nigrilobus Bezzi

Dahomey : Cotonou, 70 miles W. of Lagos, ♂♂, ♀♀, 3–8.vi.1914 (*W. A. Lamborn*).

Bombylius argentatus Wiedemann

Brit. E. Africa : Kuja Valley, E. Kavirondo, 4000 feet, 1 ♀, 30.iv–1.v.1911 (*S. A. Neave*).

Bombylius delicatus Wiedemann

Imatong Mts., 1 ♀, 7.xii.1933 (*Miss M. Steele*) ; Unoa, Nziu, 1 ♀, xii.1938 (*C. G. MacArthur*).

Zanzibar : near Mazi Moja, 1 ♂, 1 ♀, 20.viii.–11.ix.1924 (*H. J. Snell*).

Systoechus austeni Bezzi

The male of this species has not so far been described. Hesse (1938, A revision of the Bombyliidae (Diptera) of Southern Africa. *Ann. S. Afr. Mus.* 34 : 1–1053) did not record it for South Africa, although it was described from NW. Rhodesia. The author has before him one female, Belgian Congo : Elizabethville, 11–17.ix. 1931 (*J. Ogilvie*), which agrees very well with Bezzi's description. A male, with the same data and locality, also very probably belongs to this species.

Male.—Differs from female in its frons ; eyes broadly separated by full width of ocellar triangle ; vertex nearly one-seventh of head width. Antennae broken. Fourrure on abdomen usually more dense and bristles on hind margin of tergites hair-like. Halteres as in female, yellow. Considerably larger than female ; length of body 9·5 mm., of wing 9 mm. (my specimen of female : 7 mm. and 6·5 mm. respectively).

Dischistus gemmeus Bezzi

Nyasaland : Lingadzi, near Domira Bay, 1700 feet, 1 ♂, 10.xii.1914 (*Dr. W. A. Lamborn*).

Dischistus nucalis Bezzi

Unoa, Nziu, 2 ♂, xii.1938 (*C. G. McArthur*).

The following details can now be added regarding this species :

Occiput and head below grey dusted ; hairs on frons and antennae longer than first two segments of antennae together ; eyes contiguous for a distance equal to length of ocellar triangle ; infuscation of wings very poorly developed, wings almost hyaline ; front metatarsus equal to front tibia and much longer than other four joints together.

Dischistus diadematus Bezzi

Gold Coast : Aburi, 1 ♀, 1912–13 (*W. H. Patterson*). Nyasaland : Cholo, 1 ♀ (*R. C. Wood*). Portuguese East Africa : J. Boeoze, 1 ♀, 25.xi.1916 (*R. C. Wood*). Uganda : Bwamba, 1 ♀, iv.1944 (*van Someren*). Nigeria : Ibadan, 1 ♀, 3.vii.1922 (?). Togoland : Lome, 1 ♀, 5.xii.1933 (*Miss M. Steele*).

In my paper entitled " Dipterologische Fragmente XXXVIII. Bombyliiden-Notizen " (1947, *Eos, Madr.*, **23** : 79–101) there is an erratum on page 85, line 1 : it should not read : " Ueber der Flügelbasis ", but " Ueber der Fühlerbasis ". This row of black hairs running from the base of the antennae obliquely to the side of the mouth may or may not be present (the hairs are black or pale yellow). On the frons there is a shining black, M-shaped pattern in the area of the ocellar triangle. The vertex is broad, at least one-third of the head width. The sides of the frons widen distinctly to the antennae. The pubescence on the whole body is mainly golden, depressed.

The author has before him also 1 ♀, Brit. E. Africa : Masai Reserve, 14.iv.1913, and 1 ♀, Kabete, 24.v.1916 (both *T. J. Anderson*). These specimens are larger than usual, but their state of preservation is too poor to allow their systematic position to be stated precisely. It is probable that they are only larger specimens of this species and have lost the silvery spots (as also 1 ♀ from Cholo) through bad preservation. The male is undescribed. It is very probably *D. senegalensis* (as is also the opinion of Prof. Bezzi), but a good series of both sexes was not available to me for comparison.

THE SPECIES OF THE GENUS *SYMMICTUS* LOEW (DIPTERA : NEMESTRINIDAE)

By D. J. Greathead

(*Anti-Locust Research Centre*)

Since the publication of a paper on the life history of *Symmictus flavopilosus* (Bigot) as a parasite of the Desert Locust *Schistocerca gregaria* (Forskål) (Greathead, 1958), it has become possible to clarify the identification of the material from eastern Africa which was provisionally assigned to *Symmictus flavopilosus*.

Two species of the genus *Symmictus* have been described : *S. costatus* Loew from South Africa and *S. flavopilosus* (Bigot) from southern Europe. The only named material of either species examined previously by the present author was the type of *S. flavopilosus*, and the work of Arias (1911 ; 1913) had been overlooked. The present author has now had access to a specimen from Andalusia identified as *S. costatus* by Loew himself and to a series of specimens from South Africa. The principal point of difference between Loew's description and illustration and Bigot's type is the presence in the latter of an additional veinlet in the posterior margin of the wing, and it was on the basis of this difference that the material from eastern Africa was assigned to *S. flavopilosus*. As the type of *S. costatus* cannot be traced, it has not been possible to check the accuracy of Loew's drawing. This veinlet is present in the material from South Africa and the specimen identified as *S. costatus* by Loew. Arias (1911) discussed the wing venation, figuring the wings of all the specimens known to him. These were all from the palaearctic region and show that there is considerable variation in the position and presence of veinlets in the posterior part of the wing. Arias concluded on these grounds that *flavopilosus* is a synonym of *costatus*. Lichtwardt (1909) had, however, come to the contrary conclusion, also based on an examination of the wing venation of palaearctic specimens, and even retained the generic name *Dicrotrypana*.

The present study shows that the range of variation in the series from eastern Africa and South Africa is very wide and that all the specimens examined can be assigned to a single species. As confusion has arisen and the type of *S. costatus* is lost, it has been decided to designate a neotype and redescribe the species. As the South African material is in poor condition a specimen from eastern Africa has been chosen.

Symmictus costatus Loew

Symmictus costatus Loew (1857), (1858), (1860) ; Caffraria.
Dicrotrypana flavo-pilosa Bigot (1879); S. Europe.
Dicrotrypana flavopilosa Bigot (1881).
Symmictus costatus Loew ; Wandollek (1897).
Symmictus costatus Loew ; Strobl (1905).
Dicrotrypana flavopilosa Bigot ; Lichtwardt (1909).
Symmictus costatus Loew ; Lichtwardt (1909).
Symmictus costatus Loew ; Arias (1911 ; 1913).
Symmictus flavopilosus (Bigot) ; Sack (1933) ; Greathead (1958).

The characters put forward as specific by authors who have considered that there are two species, or even that there are two genera, are all very variable. The extremes are present both in the South African and in the eastern African series. Arias (1911) has discussed the variation in wing venation. The extent of chocolate-brown pigmentation of the veins and fore border of the wing membrane, and the

coloration of the pubescence and cuticle of the body, are likewise subject to individual variation. The pubescence is either golden or silver in colour ; similar intra-specific colour forms are known in other families of Diptera, such as the Tabanidae, *Tabanus biguttatus* Wiedemann being an example (Oldroyd, 1954).

The pupae of material from eastern Africa have been described and figured from exuviae (Greathead, 1958) and are identical with a pupal exuvium from South Africa.

Neotype male

Head : ground colour black with long pale yellowish pubescence except immediately below ocelli, where the frons is bare except for a small tuft of long black hairs. Compound eyes separated at frons by width of median ocellus ; lower facets slightly enlarged, bare, reddish-brown, ocellar tubercle prominent, bearing scattered long black hairs ; ocelli whitish. Antennae light brown, first and second segments short and of equal length, third segment club-shaped with a bulbous base and narrow apex and about 3 times the length of the first 2 segments ; bare except for some minute yellow hairs on the second and the base of the third segments. Mouthparts vestigial, hidden in pubescence, light brown.

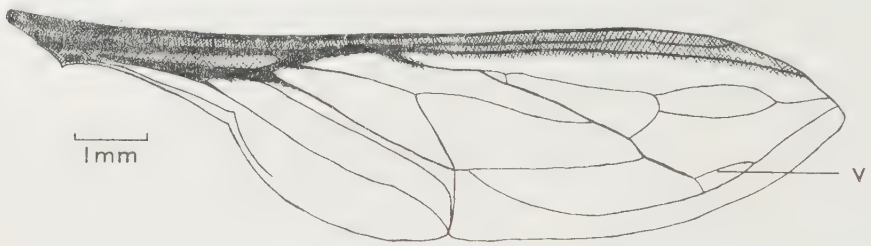


Fig. 1.—Right wing of *Symmictus costatus* Loew, neotype. (*V*, Veinlet not present in Loew's figure of the wing of the type (Loew, 1858).)

Thorax : ground colour dull black, paling on scutellum and sternum to dark brownish ; pubescence long, scanty, deep golden on dorsum of mesothorax and centre of scutellum and forming 2 indistinct longitudinal bands ; pubescence on pleurae denser and pale golden.

Legs : reddish-brown ; strong. Coxae with long yellow hairs, femora with some long yellow hairs toward the base, the remainder of the femora, tibiae and tarsi covered with short spicules. Claws strong ; empodia black, well developed.

Wings : hyaline, slightly wrinkled, narrowed at base, with chocolate-brown pigmentation in costal and subcostal cells and adjoining R_1 and base of *Rs*. Veins dark brown in fore border of wing, paling posteriorly and becoming colourless. Venation as in figure. Squamae small, opaque whitish. Halteres light brown.

Abdomen : short, rounded, narrowing to prominent genitalia. Tergites black, paling to brown along posterior margins of segments, with flattened, dark golden, hairs, sparse except on posterior margins. Sternites more brownish with pale golden hair. Genitalia reddish-brown, large, projecting posteriorly ; cerci darker, well sclerotised, triangular.

Length : body, 11 mm.; wing, 11 mm.

Females resemble males except that the eyes are separated at the narrowest point by twice the width of the ocellar triangle and the face is broader. The genitalia consist of a pair of linear elongate adpressed valvae equal in length to the middle tibia.

The other specimens vary from the neotype as follows :

Body colour may be either lighter, with more extensive brown areas, or almost entirely black. Pubescence may be very pale yellow or silver and the pigmentation of the membrane of the wings reduced or absent.

Neotype ♂ and pupal exuvium " Somaliland Prot., near Marsham, 22.i.57, from *Sauracris*, G. B. Popov ".

Materials Studied and Assigned to S. costatus

(i) Type of *S. flavopilosus* (Bigot), a ♀, from southern Europe.

(ii) Specimen in the Zoologisches Museum, Berlin, from Andalusia, identified as *S. costatus* by Loew.

(iii) Specimens from the South African Museum :

♂ " Specimen of *Symmictus costatus* Loew presented to S.A.M. by Potgieter ", and a pupal exuvium with fourth larval exuvium " Ac—P 3681, Murkraal, Kimberley, J. Potgieter ".

♂ " Kaross, S.W.A., Mus. Exped., Feb. 1925 ".

♂ " Kaoko Otavi, S.W.A., Mus. Exped., Mar. 1926 ".

♂ " Zesfontein, S.W.A., Mus. Exped., 1925 ".

♀ " Kamanyab, S.W.A., Mus. Exped., Jan. 1925 ".

(iv) Specimens from British Museum (Nat. Hist.) :

A headless ♂ specimen and two larvae " Um Darag, Sudan, R. C. M. Darling, bred from larva in body cavity of living adult *Schistocerca gregaria* Forsk., 18.viii.32, pupal stage 91 days ".

♂ " South Africa, Pretoria, 1924, H. M. Curson ".

(v) Specimens from eastern Africa in the collection of the Anti-Locust Research Centre :

♂ " Ethiopia, Ogaden, 30 miles S. of Shillave, 23.xi.53, D. J. Greathead ".

♂ and pupal exuvium, " Wajir, Kenya, 26.i.55, bred from larva col. 4.vii.55, pupal period 10 days, from *Schistocerca gregaria* 5th instar, D. J. Greathead ".

♀ and pupal exuvium " Somaliland Prot., near Marsham, 23.i.57, from *Sauracris*, G. B. Popov ".

♂ and pupal exuvium " Somaliland, Bio Fogo near Berbera, *Balanites* wood, ex. *Sauracris*, col. 4.ii.57, em. 8.ii.57, G. B. Popov, adult emerged 30–31.iv.57 ".

The neotype has been deposited in the British Museum (Nat. Hist.).

Acknowledgments

The author is indebted to Dr. A. J. Hesse of the South African Museum and Professor Dr. F. Peus of the Zoologisches Museum der Humboldt Universität, Berlin, for sending material on loan, to Mr. J. E. Collin for the loan of the Bigot type, and to Mr. H. Oldroyd of the British Museum (Natural History) for helpful discussion and criticism.

References

Arias, J., 1911, Notas dipterológicas. I. *Symmictus costatus* Loew, y *Dicrotrypana flavopilosa* Bigot. *Bol. Soc. esp. Hist. nat.* **11** : 560–76.

—— 1913, Dípteros de España. Fam. Nemestrinidae. *Trab. Mus. Cienc. nat., Madr.* (*zool.*) No. 13 : 33 pp., 7 pls.

Bigot, J., 1879, Les diagnoses de trois genres nouveaux de Diptères. *Bull. Soc. ent. Fr.* **1879** : LXVII–LXVIII.

—— 1881, Diptères nouveaux ou peu connus. 16^{e} partie, No. XXIII. Tribus nemestrinidorum. *Ann. Soc. ent. Fr.* (6) **1** : 13–21.

Greathead, D. J., 1958, Notes on the life history of *Symmictus flavopilosus* Bigot (Diptera : Nemestrinidae) as a parasite of *Schistocerca gregaria* Forskål (Orthoptera : Acrididae). *Proc. R. ent. Soc. Lond.* (A) **33** : 107–19, 1 pl.

Lichtwardt, B., 1909, Beitrag zur Kenntnis der Nemestriniden (Dipt.). *Dtsch. ent. Z.* **1909** : 507–14.

Loew, H., 1857, Bidrag till kännedomen om Afrikas Diptera. *Öfvers. VetenskAkad. Forh., Stockh.* **14** : 337–84.
—— 1858, Ueber einige neue Fliegengattungen. *Berl. ent. Z.* **2** : 101–12.
—— 1860, Die Dipteren-Fauna Sudafrika's. Abt. 1. *Abh. naturw. Ver. Sachsen u. Thüringen* **2** : xi + 73–402, 2 pls.
Oldroyd, H., 1954, *The Horse-Flies (Diptera : Tabanidae) of the Ethiopian Region.* Vol. II. London, British Museum (Nat. Hist.).
Sack, P., 1933, Nemestrinidae. *In* Lindner, *Flieg. pal. Reg.* **4** (1) Lief. 75 : 42 pp., 3 pls.
Strobl, G., 1905, Spanische Dipteren. II. Beitrag. *Mem. Soc. esp. Hist. nat.* **3** : 271–422.
Wandolleck, B., 1897, Nachtrag zu meiner Arbeit : Monographie der Gattungen *Colax* Wiedem. und *Trichopsidea* Westw. in den entomologischen Nachrichten, Jahrgang 1897, pag. 241–52. *Wien. ent. Ztg.* **16** : 213–5.

Book Notice

Aëdes aegypti (L.) the Yellow Fever Mosquito. By Sir S. Rickard Christophers. 4to. Cambridge (University Press), 1960. Pp. xii, 739 : text illust. £3 15s. 0d.

This work provides a comprehensive systematic treatment of the present knowledge of *Aëdes aegypti*, the Yellow Fever mosquito, by bringing together widely scattered information, including many unpublished results of the author's own research. The subject is dealt with under the following headings : a historical account of early work ; systematics ; life history, breeding places, natural enemies and parasites ; disease relations and control measures ; techniques for maintenance and study ; the structure and physiology of the egg ; embryology ; the larva, pupa and imago with their morphological and physical characteristics, and descriptions of their physiology and behaviour.

The work is illustrated with numerous line drawings. There is a list of references following each section and a detailed general index completes the work.

A NEW GENUS AND SPECIES OF THAUMALEIDAE FROM SOUTH AFRICA (DIPTERA)

By B. R. Stuckenberg

(*Natal Museum, Pietermaritzburg, South Africa*)

A single female specimen belonging to the small nematocerous family Thaumaleidae, collected near the summit of the Drakensberg Mountains in Natal, is described below as representing a new genus and species. This family has not hitherto been recorded from Africa south of the Sahara.

Afrothaumalea gen. n.

Wings broad, rounded, with only microtrichia; subcosta weak, ending free, its apical part absent; costa slightly flexed above end of subcosta; radius strongly flexed over part of its length into first basal cell, just before origin of radial-sector, first basal cell thereby divided into two; R_1 ending almost above middle of wing, R_{2+3} about midway along R_1, R_4 sinuous; basal portion of M_4 much shorter than *m-cu*. Palps 5-segmented, basal segment persisting as a remnant fused with second palpal segment. Only the first antennal segment swollen. Hind tibia with comb at apex, first tarsomere of hind leg without comb. Sternite 8 not fused with tergite 8 in female.

Type species by present designation: *Afrothaumalea pamelae* sp. n.

In wing-venation and shape of the wing *Afrothaumalea* approaches *Austrothaumalea* Tonnoir (1927) very closely, sharing with that genus the following characters: (*a*) the broad, rounded shape; (*b*) the long *m-cu* cross-vein; (*c*) the sinuous curve of R_4; (*d*) the flexure of the costa above the end of the subcosta; (*e*) R_1 ending approximately above the middle of the wing; and (*f*) R_{2+3} (the "cross vein") situated about midway along R_1.

Dr. P. Freeman of the British Museum (Nat. Hist.) has kindly sent me a wing of a paratype of *Austrothaumalea neozealandica* Tonnoir, the type-species of the genus, for comparison with that of *Afrothaumalea*, and an examination has shown that they are very similar. In Tonnoir's species the radius is distinctly flexed into the first basal cell, though no mention of this was made in the original description, and the humeral cross vein and apical portion of the *Sc* appear to be absent. The wings of Neotropical species figured by Edwards (1930) do not show these features, the basal section of the radius being straight, *Sc* abruptly deflexed at the apex through a right-angle towards the radius, and the humeral cross vein present. In the Nearctic *Trichothaumalea* Edwards (1929) and *Thaumalea nigra* Loew, the type species of Enderlein's (1936) genus *Orphnephilina*, the apex of the *Sc* is missing. *Afrothaumalea* shows no trace of an appendage near the base of *Cu* like that occurring in some Neotropical species of *Austrothaumalea*. In lacking a tarsal comb and possessing a tibial comb, *Afrothaumalea* resembles *Trichothaumalea*. It is perhaps premature to speculate on the phylogenetic relationships of *Afrothaumalea* at this stage as only one sex is known, but it may be pointed out that the characters of the wings as listed above indicate an affinity with *Austrothaumalea neozealandica* Tonnoir of New Zealand. *Afrothaumalea* differs in the structure of the antennae and lack of a tarsal comb, and possibly in the structure of the palps.

I have not been able to discover any information as to the number of segments in the maxillary palps (even in comprehensive works such as those of Edwards (1929) and Lindner (1930)) except in Tonnoir (1927 : 109), who states that there are four segments in *Thaumalea*, and Curran (1934 : 67) who gives the number as five for the entire family. In the female of *Afrothaumalea pamelae* five palpal segments are present; the first (basal) segment is almost completely fused with the second and is visible only as a swelling on the undersurface of the base of that segment.

Afrothaumalea pamelae sp. n.

Female

Wing 2·28 × 1·1 mm. Vertex very dark brown, in the shape of a wide isosceles triangle, with many short, dark, proclinate hairs; a pair of short setae close together on frons. Eyes black, holoptic, meeting along a line equal to about 4 of the largest facets, microscopically hairy. Antennae dark brown, most of the flagellar segments missing; first segment enlarged, globular, broader than long, bearing around its outer perimeter a row of forwardly-directed setulae, and with microscopic setulae arranged in a series of concentric circles over apical half of segment; second (first flagellar) segment much smaller, elongate, subcylindrical, third segment similar to second but smaller. Mouthparts black; palpi 5-segmented, basal segment fused with second segment and partly vestigial; fifth palpal segment about one-third longer than penultimate segment; fourth segment subequal to third which is the stoutest; second segment narrower, as thick as fifth and almost as long as third; first segment thicker than basal part of second.

Mesonotum uniformly dark brown, with short, fine, dark setulae most of which are directed outwards. Scutellum blackish. Pleura slightly more yellowish than mesonotum. Three subequal, outwardly-directed notopleural bristles in an oblique row before base of wing, and one supra-alar bristle. Hind margin of scutellum with 6 bristles. Prothoracic lobes with some short, suberect

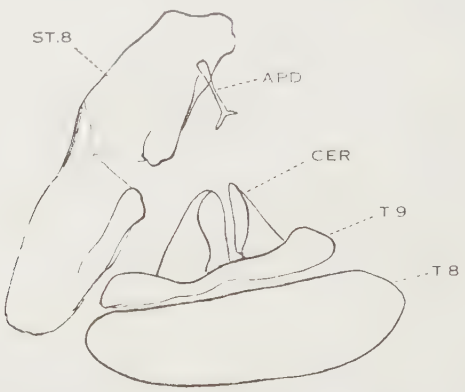


FIG. 1.—*Afrothaumalea pamelae* sp. n. Terminal sclerites of female abdomen; APD is a small apodeme normally situated above the middle of the eighth sternite (ST. 8). (Other lettering, see text.)

bristles. Halteres long, dull blackish-brown. Legs yellowish-brown, tarsi darkened, fourth tarsomere very short and deeply bilobed. Pulvilli absent, empodium represented by a weak, feathered hair. Hind legs without tarsal comb, but with comb on inner side of apex of tibia; hind femora thickened, tibia stouter apically, first tarsomere subequal to remainder. Middle legs with some fine bristles on tibia; first tarsomere distinctly longer than remaining tarsomeres together. Front legs with first tarsomere longer than remainder together; tibia and first tarsomere with some short, serially-arranged bristles and 3–4 bristles at apex of tibia.

Abdomen subshining blackish-brown, with scattered, reclinate, dark, bristle-like hairs which are mainly confined to lateral parts of tergites. Eighth tergite (fig. 1, *T. 8*) not fused with eighth sternite (*ST. 8*), which is a transverse sclerite with a deep, narrowly V-shaped median excision. Ninth tergite (*T. 9*) shaped as in figure 1, very narrow, a little dilated at each end. Cerci (*CER*) subtriangular in outline, prominent.

Wing (fig. 2) short, broad, rounded. Humeral cross-vein and *Sc* very weak, *Sc* running very close to base of radius and terminating abruptly, its end free. Just beyond end of *Sc* is a weakness in the wing membrane extending upwards to costa as a hyaline streak, and opposite this point the costa is gently flexed inwards. Radius interrupted just before origin of *Rs*, being flexed over some distance into first basal cell, the sclerotisation surrounding the posterior edge of this flexure extending to base of media, the first basal cell thereby divided into an elongate-triangular basal part and a pentagonal apical cell; it is this feature which gives the wing its characteristic appearance. R_1 is stoutest of all veins and curves upwards to meet costa approximately above middle of wing. R_{2+3} short, placed about midway along R_1. R_4 quite strongly sinuous, ending

close to wing-tip. Base of R_5 about twice length of *r-m*. R_5 very gently sinuous, ending at wing-tip. First median vein almost straight, continued basad between basal cells and fused at one point with downward extension of sclerotisation along lower side of flexure in radius. Second median vein gently sinuous. First posterior cell a little narrower at apex than second. The *m-cu* about twice basal section of second median vein. *Cu* almost straight, with a slight, angular kink at *m-cu*, without a spur. Anal vein absent. Membrane greyish-hyaline, unspotted, veins brown, radius setose from base to beginning of flexure, other veins bare.

Holotype ♀, NATAL: Drakensberg Escarpment, swept from damp herbage overhanging a rock face wetted by seepage, on very steep terrain at the foot of the Organ Pipes Pass (9300 ft.), Cathedral Peak area, March, 1959 (*P. J. Stuckenberg*). In the Natal Museum.

FIG. 2.—*Afrothaumalea pamelae* sp. n. Wing of holotype female.

No further specimens were found at the type locality despite intensive collecting. This is surprising since species of the other genera have often been reported as common where they occur. The type locality is within a few hundred feet of the edge of the Drakensberg Escarpment, and is subject to great extremes of climate. The vegetation at that altitude is mainly *Themeda* grassland with endemic ericaceous shrubs.

The species is named in honour of my wife who discovered the holotype.

REFERENCES

BEZZI, M. 1913, Taumaleidi (Orfnefilidi) italiani con descrizione di nuove specie. *Boll. Lab. Zool. Portici* **7**: 227–66, 8 figs.

CURRAN, C. H., 1934, *The families and genera of North American Diptera.* 512 pp. New York.

EDWARDS, F. W., 1929, A Revision of the Thaumaleidae (Dipt.). *Zool. Anz., Wasmann-Festband*: 121–42, 46 figs.

—— 1930, *Diptera of Patagonia and South Chile. Thaumaleidae. Part* 2 (3): 111–4, text-fig. 6, figs. 20–26 on pl. xi. London. Brit. Mus. (Nat. Hist.).

ENDERLEIN, G., 1936, *Zweiflügler, Diptera.* In *Tierwelt Mitteleuropas* **6** (3) Teil, 2 Lief., xvi, 259 pp., 317 figs.

LINDNER, E., 1930, *Thaumaleidae.* In *Die Fliegen der Palaearktischen Reg.* **50** (3), 16 pp., 3 pls. Stuttgart.

TONNOIR, A. L., 1927, Descriptions of new and remarkable New Zealand Diptera. *Rec. Canterbury (N.Z.) Mus.* **3** (2); 101–12, 4 figs.

TWO NEW EUROPEAN SPECIES OF *XYELA* DALMAN (HYMENOPTERA: XYELIDAE)

By Robert B. Benson

(*British Museum (Natural History)*)

Among some specimens of *Xyela* (*see* Benson, 1945) recently sent to me for examination by Prof. Dr. J. de Beaumont of Lausanne was one from Greece representing a new species, which I describe below. In the same collection *X. julii* (Brébisson) was represented by recent specimens collected in Spain: Teruel, Sierra de Gudar, v.1951 (*J. Aubert*), and *X. curva* (Benson, 1938), previously known only from Austria, by specimens from Spain: Jaen, Sierra de Cazorla, 1300 m., v.1959 (*J. Aubert*).

Below I also include the description of another previously unrecognised species of *Xyela* which I found myself in Austria in 1957 and again in Switzerland in 1959, both at altitudes over 6000 feet. It is now clear, however, that the specimens collected by Strobl, also in the Austrian Alps and called *Xyela julii* var. *obscura* (Strobl), belong to the same species as mine, and Strobl's name is therefore available for use, though in a new sense.

I will also take this opportunity of recording that I collected one female *X. julii* near Abisko, on the Torne Träsk in Swedish Lapland, at about 68° lat., in June, 1954; this is, I believe, its northernmost record. It host-plant, *Pinus sylvestris* L. (Benson, 1954), was, however, scarce in the birch forest at Abisko and needed special searching, although in fact its range extends throughout the mainland of Lapland almost to North Cape.

Xyela obscura (Strobl) stat. nov.

Pinicola julii var. *obscura* Strobl, 1895, *Wien ent. Ztg.* **14**: 277.

Female

Black or piceous with the following more or less brown: clypeus, mouthparts, an obscure spot on the outer upper orbits, tegula, legs (though the coxae and more or less the femora are infuscate), ovipositor and associated anal sternites. Wings hyaline; stigma and venation yellowish. Length 3·0–3·5 mm.

Head normal, with apical 9 segments of antenna shorter than 3 basal segments, and hind ocelli closer together than distance from back of head (fig. 3); postocellar line: ocular ocellar line (POL : OOL) as 1·0 : 1·6. *Thorax* normal. *Abdomen* with ovipositor as in *X. graeca* Stein (fig. 2), shorter than length of antenna; sawsheath to basal plate as 1·7 : 1·0.

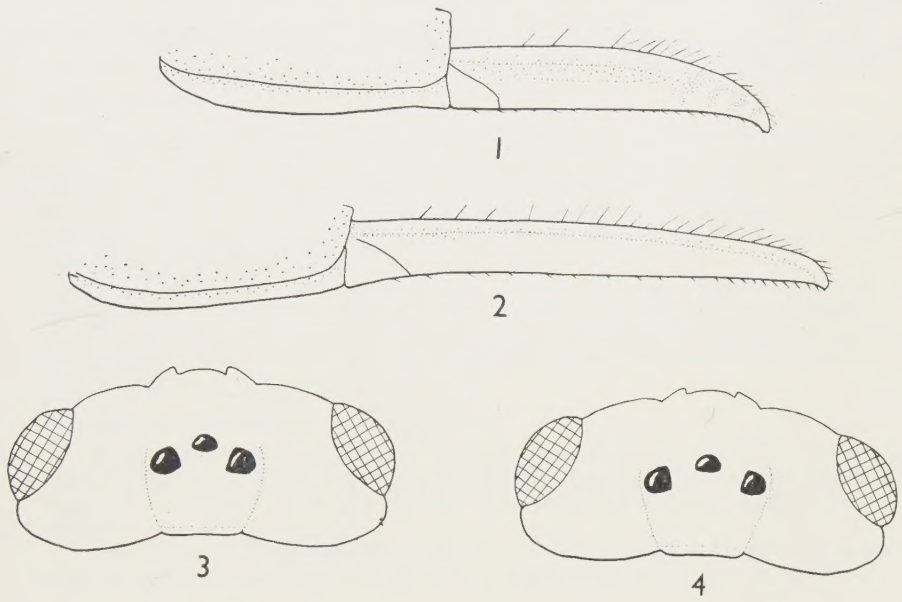
Male

Black or piceous with the following brown or yellow: antenna and face between and below, as well as broad inner and outer orbits, edge of pronotum, tegula, fleck on middle of lateral lobes of mesonotum, large obscure fleck on mesepisternum and legs (though coxae and more or less the femora are infuscate). Wings as in female. Length 2·5–3·0 mm.

Head normal, with apical 9 segments of antenna longer than 3 basal segments, and hind ocelli closer together than distance from back of head; POL : OOL as 1·0 : 1·8. *Thorax, wings and abdomen* as in *X. graeca* Stein.

In June, 1957 I collected a series of this species from prostrate Mountain Pine (*Pinus mugo* Turra) at over 6000 feet, on the plateau of the Raxalp in the Semmeringebiet, Lower Austria. Then in June, 1959, when working *Pinus cembra* L. for *Xyela alpigena* Strobl at over 6000 feet in the Aletschwald, Valais, Switzerland, I collected

a further series. On both occasions I mistook the species in the field for a dark alpine race of *X. julii*, as did Strobl. Strobl collected his original series from *Pinus mugo* at over 5000 feet (1600 m.) in the mountains near Admont, in Steiermark, Austria. Recently, on examining my series more closely, I see that in structure they agree much more with *X. graeca* Stein ; in fact they are chiefly to be distinguished from the latter only because of their larger size and different colour pattern (*X. graeca* is mainly yellow with black flecks on frons, thorax and abdomen above). They differ from *X. julii* not only in having the ovipositor shorter than an antenna (longer than



Figs. 1–2.—Ovipositor of : (1) *Xyela menelaus* sp. n. ; (2) *X. obscura* (Strobl).
Figs. 3–4.—Head from above to show position of ocelli in :
(3) *Xyela obscura* ; (4) *X. julii* (Brébisson).

an antenna in *julii*), but also in having the basal plate more than half as long as the apical portion (the sawsheath) (in *julii* the basal plate is about half the length of the sawsheath).

Xyela menelaus sp. n.

Female

Black with the following brownish-yellow : mouthparts, front of clypeus, flecks between the antennae, ∧ -shaped fleck above each eye, continued obscurely on inner orbits, lateral margin of post-ocellar area, antenna obscurely below, tegula, medial and lateral portion of lateral mesonotal lobes obscurely, middle of scutellum, mesepisternum, mesosternum laterally, legs almost entirely, abdomen laterally and beneath, including ovipositor. Wings hyaline ; stigma and venation yellowish-white. Length 3·5 mm.

Head normal, with 9 apical antennal segments together shorter than 3 basal ones together ; hind ocelli about as far from each other as from back of head ; POL : OOL as 1·0 : 1·7. *Thorax* normal. *Abdomen* with ovipositor very short, about as long as hind tibia and tarsus together and shorter than length of antenna ; apical portion (sawsheath) scarcely longer than basal plate (1·1 : 1·0).

Greece : Peloponnesos, Taïyetos Mountains, 1 ♀, 21.v.1955 (*J. Aubert*). In Musée Zoologique, Lausanne.

In the female this new species differs from all those previously known in the world by its very short ovipositor, of which the apical part, the sawsheath, is scarcely longer than the basal plate.

References

Benson, R. B., 1938, European sawflies of the genus *Xyela* Dalman (*sens. lat.*) (Hymenoptera Symphyta). *Proc. R. ent. Soc. Lond.* (B) **7** : 32–36, figs. 1–5.

—— 1945, Classification of the Xyelidae (Hymenoptera : Symphyta). *Ibid.*, **14** : 34–37, figs. 1–3.

—— 1954, The finding of many larvae of *Xyela julii* Brébisson (Hym., Xyelidae). *Ent. mon. Mag.* **90** : 93.

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MEETINGS

TO BE HELD IN THE SOCIETY'S ROOMS
41, Queen's Gate, S.W.7

1960

Wednesday, October 5
„ November 2
„ December 7

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